New Claims 14-23 have been added, which are drawn to narrower and more preferred embodiments of the invention.

All amendments find support in the claims and specification as originally filed.

Upon entry of these amendments, Claims 1, 3-4, 9-10, and 12-23 will be active. Entry and favorable consideration are kindly requested.

REQUEST FOR RECONSIDERATION

Applicants thank Examiner Jackson for the courteous and helpful discussion held with Applicants' U.S. representative on September 17, 2002. At that time, the Examiner indicated that Claims 9 and 13 should have been included in the rejection over the JP '974 and Katono references. Under the circumstances, and as was discussed during the interview, Applicants kindly request the Examiner to consider the amendments and arguments submitted herein though this case is under final.

Applicants submit herewith an English translation of the JP '974 reference for the Examiner's consideration.

The rejection over JP '974 and Katono is respectfully traversed.

As was discussed during the interview, the references provide no teaching regarding those embodiments of the invention which contain a carboxylic acid or wherein the lubricating particle contains either graphite carbon or polytetrafluoroethylene. The applied references are completely silent on these claimed elements. Thus, Claims 3, 14, 19, 20 and 23 should be immediately allowable over the cited references. The references are similarly

silent regarding a C_{5-12} metal carboxylate wherein the metal is not an alkali metal or calcium, and thus Claim 22 is likewise allowable.

With respect to the broadest claim in the case, Claim 1, it is believed that no *prima* facie case of obviousness exists because neither reference suggests that the embodiment of the claimed composition which requires C_{5-12} metal carboxylates would work any better than similar compositions having metal carboxylates outside the claimed range. If the Office deems that *prima facie* obviousness nevertheless exists, it is believed to be obviated by the data already of record in the specification.

A review of the English translation of JP '974 shows that it appears to be closer to the claims than the <u>Katono</u> reference. Whereas JP '974 relates to a welding wire, <u>Katono</u> relates to steel which is to be formed or deep-drawn (<u>Katono</u> column 1, lines 12-15). Indeed, based on the JP '974 disclosure, the English translation of which is provided, there is no motivation to combine <u>Katono</u> and no expectation of success in the combination.

The JP '974 reference recites that smooth wire feeding results from a "synergistic effect" owing to the components in its coating. See, e.g., JP '974 English translation page 3, lines 3-5 from the bottom. These components are one or both of molybdenum disulfide and tungsten disulfide, one or more metal soaps, and lanolin. The reference also requires particular amounts of each component. Thus, it would not be obvious to depart from either the members or the amounts required for the JP '974 composition. See, e.g., JP '974 English translation paragraphs [0007] - [0010]. The reference does not disclose C₅₋₁₂ metal carboxylates and instead mentions only "potassium soap, sodium soap, and calcium soap" in its coating. JP '974, page 4, lines 1-2 from the bottom. The reference provides no guidance

as to what the composition of these soaps might be, and there is nothing in the reference to suggest that the claimed C_{5-12} metal carboxylates and carboxylic acids would work any better than any other metal carboxylates and carboxylic acids.

Applicants submit that even *prima facie* obviousness, were it established over the references, is obviated by the data already of record in the specification. Applicants have attached Tables 8-1 to 8-3 from pages 32-34; Tables 8-6 and 8-7 from page 37; Corrected Tables 9-1 and 9-2 (corrected by Preliminary Amendment filed with this application); and Tables 9-4 and 9-6 from page 40 for the Examiner's consideration.

Applicants first note that none of the invention or comparative examples contain lanolin, in contrast to JP '974 (which requires lanolin), and many of the invention and comparative examples have compositions with amounts outside the ranges required by JP '974. Thus, the invention is compared to compositions that are even closer to the invention than JP '974. This is permitted as noted in MPEP 716.02(e).

In particular, Applicants point out <u>invention</u> Examples 6 and 17 (Tables 8-1 and 8-2) and <u>comparative</u> Examples 53, 62, and 63 (Tables 8-6 and 8-7) and the corresponding results in Tables 9-1, 9-2 (for the invention examples) and Tables 9-4 and 9-5 (for the comparative examples).

In the data, potassium carboxylate-containing compositions within the claims are compared to potassium carboxylate-containing compositions outside the claims. Invention Example 6 contains potassium octylate (8 carbon fatty acid) and $MoS_2 + C$ (lubricating particle) and is comparable to comparison Example 53, which contains potassium acetate (2 carbons) and MoS_2 . Invention Example 17 contains potassium linderate (12 carbons) and

MoS₂ and is comparable to comparison Example 53, which contains potassium acetate (2 carbons) and MoS₂ and comparison Examples 62 and 63, which both contain potassium stearate (18 carbons) and MoS₂.

Turning to the results in Tables 9-1, 9-2 (for the invention examples) and Tables 9-4 and 9-5 (for the comparative examples), it is clear that invention Example 6 has better feed resistance, feed resistance stability and degree of clogging than does comparative Example 53. Similarly, invention Example 17 has better feed resistance and feed resistance stability than both comparative Examples 62 and 63 and better degree of clogging than comparative Example 63.

It is evident from the data already of record in the specification that the claimed invention inheres superior properties when compared to compositions that are even closer than the closest prior art. Applicants kindly request the Examiner to withdraw the rejection over JP '974 and <u>Katono</u> and pass this case to issue.

This application is now believed to be in condition for allowance, and early notice of such action is kindly solicited.

Respectfully submitted,

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Serial No: 09/960,487 Amendment Filed Herewith

IN THE CLAIMS

Please amend the claims as indicated below.

--1. (Three Times Amended) A welding wire comprising

a wire having a wire surface; and

a deposit on the wire surface, wherein

the deposit comprises

at least one lubricating particle, and

at least one compound selected from the group consisting of (a) saturated or unsaturated, linear or branched, carboxylic acid having from 5 to 12 carbon atoms; (b) saturated or unsaturated, linear or branched, metal carboxylate having from 5 to 12 carbon atoms, and mixtures of (a) and (b) [carboxylic acids and metal carboxylates];

and wherein the at least one lubricating particle comprises a material selected from the group consisting of molybdenum disulfide, tungsten disulfide, graphite carbon and polytetrafluoroethylene[;

the at least one compound consists of atoms selected from the group consisting of hydrogen, carbon, oxygen, nitrogen, sulfur, phosphorus and metal atoms; and

the at least one compound has a saturated or unsaturated, linear or branched, structure with from 5 to 12 carbon atoms].

- 3. (Three Times Amended) The welding wire according to Claim 1, wherein the at least one compound [comprises] is a carboxylic acid selected from the group consisting of pentanoic acid, caproic acid, caprylic acid, octylic acid, secanoic acid, capric acid, decanoic acid, lauric acid, linderic acid and synthetic fatty acids.
- 4. (Three Times Amended) The welding wire according to Claim 1, wherein the compound [comprises] is a metal carboxylate that is a metal salt of a carboxylic acid selected from the group consisting of pentanoic acid, caproic acid, caprylic acid, octylic acid, secanoic acid, capric acid, decanoic acid, lauric acid, linderic acid and synthetic fatty acids; and

the metal salt comprises a metal selected from the group consisting of Li, Na, Mg, Al, K, Ca, Ti, Cr, Mn, Fe, Co, Ni, Cu, Zn, Zr, Sn, Cs, Pb and Ce.

- 10. (Three Times Amended) The welding wire according to Claim 9, wherein the at least one compound and at least one lubricating particle are [deposited] <u>present</u> on the wire surface in a total amount of 0.1 to 5 g per 10 kg of the wire.
- 12. (Three Times Amended) The welding wire according to Claim 1, wherein the at least one compound and the at least one lubricating particle are [deposited] <u>present</u> on the wire surface in a total amount of 0.1 to 5 g per 10 kg of the wire.
- 13. (Amended) A method of making [a] welding wire of Claim 1, the method comprising:

coating [a] the wire with [a] the deposit[, and

producing the welding wire of Claim 1] .--

--Claims 14-23 are new.--

that \odot indicates an amount of clogging of 0.002 g or below, \bigcirc indicates an amount exceeding 0.002 g but not greater than 0.005 g, \triangle indicates an amount exceeding 0.005 g but not greater than 0.01 g, and \times indicates an amount not less than 0.01 g.

Table 8-1

	No.	Wire/Flux Weight (wt%)	Fatty Acid or Salt thereof	Feed Oil	Lubricating Particles	Amount of Deposited Fatty acid or Salt thereof (g)	Total of Deposits (g)
	1	M2/F1, 15%	pentanoic acid	plant oil	WS ₂ +C	0.2	1.2
	2	M2/F2, 14%	cobalt pentanoate caproic acid	mineral oil synthetic oil	nil	0.09	0.5
	3	B1	lead pentanoate	synthetic oil	MoS ₂	0.002	2.1
	4	B4	lead octylate	mineral oil	WS ₂	0.005	0.2
	5	B1	manganese octylate secainoic acid	animal oil synthetic oil	nil	0.3	0.9
l eld	6	B2	potassium octylate	plant oil	MoS₂+C	0.2	1.3
Example	7	B1	octylic acid pottassium octylate	est, i seum meen miestas pamb pamb pa no pa noon meen sp	nacha nonne la ratura ad antalità de	0. 6	0.6
	8	M3/F4, 22%	cobalt caprylate	plant oil synthetic oil	polytetrafluoro ethylene MoS ₂	1.5	3.9
	9	B5	manganese caprylate	synthetic oil	nil	1.9	4.9
	10	M3/F3, 16%	caprylic acid zinc laurate	plant oil synthetic oil	polytetrafluoro ethylene	0.6	3.1
	11	B3	manganese caprylate tin caprylate potassium octylate	mineral oil synthetic oil	WS ₂ MoS ₂	0.1	2.5





Table 8-2

	No.	Wire/Flux Weight (wt%)	Fatty Acid or Salt thereof	Feed Oil	Lubricating Particles	Amount of Deposited Fatty acid or Salt thereof (g)	Total of Deposits (g)
	12	M4/F4, 19%	lauric acid	synthetic oil	polytetrafluoro ethylene	0.07	0.9
	13	M2/F1, 14%	lead laurate	plant oil	nil ·	0.008	0.3
	14	B4	potassium laurate manganese octylate	plant oil mineral oil	MoS ₂ polytetrafluoro ethylene	0.4	1.6
	15	Bl	lindric acid	mineral oil	MoS ₂	0.4	2.0
	16	M2/F1, 14%	manganese linderate	plant oil	MoS ₂	1.1	3.2
	17	B2	potassium linderate	synthetic oil	MoS₂	0.04	1.2
Example	18	B1	zinc laurate	plant oil	MoS ₂	0.003	0.8
Exe	19	B4	calcium linderate	synthetic oil	nil	0.09	0.2
	20	M1/F1, 13%	tin caprylate	mineral oil	MoS ₂ polytetrafluoro ethylene	0.08	1.5
	21	B2	zirconium octylate	plant oil	MoS ₂	1.9	2.3
	22	M2/F2, 14%	iron caproate	plant oil animal oil	WS ₂	0.5	1.6
	23	Bı	manganese pentanoate	synthetic oil	MoS ₂	1.2	3.5
	24	B1	lithium octylate	synthetic oil plant oil	MoS₂	1.8	4.1



Table 8-3

	No.	Wire/Flux Weight (wt%)	Fatty Acid or Salt thereof	Feed Oil	Lubricating Particles	Amount of Deposited Fatty acid or Salt thereof (g)	Total of Deposits (g)
	25	B3	copper secanoate	mineral oil plant oil	WS ₂	0.008	0.8
	26	M3/F4, 19%	nickel octylate	animal oil	polytetrafluoro ethylene	0.6	1.2
Example	27	B2	aluminium linderate	plant oil	MoS ₂ WS ₂	0.3	1.8
Еха	28	B5	titanium laurate	plant oil	nil	0.08	0.4
	29	M4/F3, 20%	cesium octylate	synthetic oil	polytetrafluoro ethylene	0.03	3.1
	30	B1	cesium octylate	mineral oil	polytetrafluoro ethylene	0.1	0.9





Table 8-6

	No.	Wire/Flux Weight (wt%)	Fatty Acid or Salt thereof	Feed Oil	Lubricating Particles	Amount of Deposited Fatty acid or Salt thereof (g)	Total of Deposits (g)
	52	M1/F1, 13%	potassium stearate	plant oil	nil	0.2	1.2
	53	M1/F2, 14%	potassium acetate	plant oil mineral oil	MoS ₂	0.1	0.9
le le	54	B1	sodium stearate	animal oil	MoS₂	0.5	2.2
Comparative Example	55	B2	nil	plant oil synthetic oil	WS₂	o	0.9
arative	56	M3/F4, 18%	potassium stearate	mineral oil	nil	0.3	1.2
Comp	57	M4/F4, 20%	nil	synthetic oil	polytetrafluoro ethylene	0	1.1
	58	B3 ·	sodium stearate	mineral oil synthetic oil	MoS ₂	1.1	2.0
	59	B5	nil	plant oil	WS ₂	0	0.8

Table 8-7

	No.	Wire/Flux Weight	Fatty Acid or Salt thereof	Feed Oil	Lubricating Particles	Amount of Deposited	Total of Deposits
*		(wt%)	Augustiagendiken Heinste vagerkolderindekonut av 2002 til synvägt haudend	er metter gen det det kolor van Erstemment Treiten in 'i Albert van de stat bank van	- making melamban nggarang menanggaranggarang a didik Ur melanggarangan	Cyclic Hydro carbon (g)	(B)
	60	M2/F1, 13%	sodium stearate	synthetic oil	nil	0.2	1.5
	61	M2/F2, 14%	nil	synthetic oil + mineral oil	WS ₂	0	3.2
	62	B2	potassium stearate	plant oil	MoS ₂	0.01	0.08
Comparative Example	63	B1	potassium stearate	plant oil + synthetic oil	MoS ₂	0.8	1.9
arative	64	M3/F4, 18%	nil	mineral oil	nil	0	1.5
Comp	65	M4/F4, 20%	potassium stearate	mineral oil	polytetrafluoroet hylene	0.08	2.0
	66	B3	calcium stearate	mineral oil + synthetic oil	WS ₂	1.3	5.1
	67	B5	sodium stearate	animal and plant oil	MoS ₂	0.3	1.0

Amend page 38, Table 9-1 as follows:

Table 9-1 (Amended)

	No.	Feed Resistance	Feed Resistance Stability	Degree of Clogging
	1	0	0	0
ļ	2	0	0	©
	3	0	0	0
<u>a</u>	4	0	©	0
Example	5	0 .	0	©
Exa	6	0	0	0
	7	0	0.	©
	8	0	©	0
	9	0	. 0	0
	10	0	©	0
	11	0	©	0

Amend page 38, Table 9-2 as follows:

Table 9-2 (Amended)

	No.	Feed Resistance	Feed Resistance Stability	Degree of Clogging
	12	0	0	0
1	13	0 0	0	©
	14	0	0	0
	15	0	0	0
	16	0	0	00000
	17	©	0	
	18	0 0	©	0
9	19	0	0	0
Example	20	0	©	© .
EX	21	©	⊚	0000
	22	©	©	
	23	© *	©	0
	24	©	© ©	
	25	0		0
	26	©	©	©
	27	0	© .	0
	28	0		⊚
	29	0	©	0
A COMP MANAGES	30			





Table 9-4

	No.	Feed Resistance	Feed Resistance Stability	Degree of Clogging
le	52	0	. ×	×
H	53	Δ	Δ	×
Example	54	0	Δ	×
	55	Δ	Δ	×
ati	56	0	×	×
Comparative	57	. \triangle	Δ	×
[wo	58	. 0	· 🛕	×
ŭ	59		Δ	×

Table 9-6

	No.	Feed Resistance	Feed Resistance Stability	Degree of Clogging
	60	0	×	×
Example	61	Δ	Δ	×
xa	62	×	×	0
	63	0	Δ	×
ativ	64	Δ	×	X
par	65	0	Δ	×
Comparative	66	0	0	×
ŭ	67	0	Δ	×

As will be apparent from Tables 9-1 to 9-6, in the examples of the invention wherein a lower fatty acid or its salt, or a cyclic fatty acid or its salt is deposited on a wire surface, and a lubricating oil or a mixture of a lubricating oil and lubricating particles are chemically combined on the wire surface, the feedabilities of the wire are improved and stabilized, and the degree of clogging of the lubricating material in the spring line